AMENDMENT TO THE DRAWINGS

Please replace FIG. 1 with the attached Replacement Sheets to correct a discovered informality. The downlink scheduler 309 is now labeled "DLS" instead of "DSL."

REMARKS

By this amendment, claims 1-39 are pending. No claim is canceled, amended or newly added.

The Office Action mailed July 13, 2005 rejected claims 1, 11, 21 and 29 under 35 U.S.C. § 102 as anticipated by *Douceur et al.* (US 6,247,061), and claims 2-10, 12-20, 22-28 and 30-39 as obvious under 35 U.S.C. § 103 based on *Douceur et al.* in view of *Prieto, Jr. et al.* (US 6,738,346).

As an initial matter, the statement of rejection under 35 U.S.C. § 103 on page 5 of the Office Action appears to omit claims 34-39. However, for the purposes of this Response, it is assumed that the Examiner intends to reject claims 34-39, as the subsequent pages 6-8 of the Office Action address these claims.

Applicants respectfully traverse the outstanding rejection on the merits, because the claimed invention patentably defines over the applied prior art, as next discussed.

Independent claims 1 and 29 recites "retrieving **a search order table specifying order for servicing of *M* queues**, the search order table having a plurality of table entries corresponding to the *M* queues that selectively store the packets, **the table entries storing values that specify relative positions of the *M* queues** and that are selected based upon a transmission constraint of the communication system." Independent claim 11 recites "a memory storing **a search order table specifying order for servicing of the *M* queues**, the search order table having a plurality of table entries corresponding to the *M* queues, the **table entries storing values that specify relative positions of the *M* queues for non-sequential servicing** and that are selected based upon a transmission constraint of the communication system." Independent claim 21 recites "a memory storing a search order table having a plurality of table entries, the **table entries storing values that specify relative positions of the plurality of queues for non-sequential servicing of the queues** in accordance with a transmission constraint, wherein the number of queues is *M*." Claim 39 recites "scheduling transmission of the packets stored in a plurality of queues based upon a **search order table specifying order for non-sequential servicing of the queues** corresponding respectively to a plurality of nodes, wherein the search order table has a plurality of table entries corresponding to the queues, **the table entries storing values that**

specify relative positions of the queues according to a transmission constraint relating to the nodes."

By contrast, the *Douceur et al.* system operates to schedule packets for transmission using an entirely different approach; this approach utilizes a series of priority lists of flow queues. Namely, *Douceur et al.* (e.g., col. 9: 38-61; FIG. 4A) discloses a packet scheduling mechanism that assigns a conformance time to each packet, analyzes the conformance times to meet the Quality of Service (QoS) requirements, prioritizes the packets in the queue, and schedules the packets to be output from the system based on these conformance times using a sequencer. That is, the *Douceur et al.* system includes a conformer for generating a conformance time for each packet based on a conformance algorithm that handles current constraints, a shaper for delaying the packets in the queue for when the conformance time is not met, and a sequencer for sending out the packets from the queue (see FIG. 2 and accompanying text).

The packet scheduling mechanism of the *Douceur et al.* system utilizes multiple lists ("priority lists") corresponding to different transmission priorities (see FIGs. 11 and 12 and accompanying text), such as Priority 0-3. In particular, a priority list (col. 2: 51 – col. 4: 16) is generated based on conformance times for each packet that are assigned specifically for meeting a QoS requirement. The sequencer maintains a priority list of packet flow queues and services the queue lists based on highest priority. Each priority list has a queue discipline or constraint that determines in what order the packets are taken off of their respective queues.

It should be noted that the *Douceur et al.* system has no capability of maintaining the claimed search order table, as the *Douceur et al.* system utilizes multiple priority lists for scheduling transmissions of packets within the flow queues. Furthermore, the priority list cannot store "**values that specify relative positions** of the plurality of queues," as it merely specifies the queues that have been designated with the particular priority. As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed in a prior art reference, based on the foregoing, it is clear that *Douceur et al.* does not anticipate claims 1, 11, 21 and 29.

Regarding the obviousness rejection, the addition of *Prieto, Jr. et al.* does not cure the deficiencies of *Douceur et al. Prieto, Jr. et al.* is applied for a supposed teaching of "wherein the *M* queues correspond to different transmission regions, and the transmission constraint in the retrieving step specifies that the packets are to be transmitted to the transmission regions that are non-interfering, the

communication system being a satellite communication system." The combination of *Douceur et al.* and *Prieto, Jr. et al.* fails to disclose all the features of the claims, and thus, a *prima facie* case of obviousness has not been established.

Additionally, Applicants respectfully disagree that *Prieto, Jr. et al.* discloses "wherein the *M* queues correspond to different transmission regions, and the **transmission constraint** in the retrieving step **specifies that the packets are to be transmitted to the transmission regions that are non-interfering**, the communication system being a satellite communication system," as recited in dependent claims 2, 12 and 30. *Prieto, Jr. et al.* does not account for any interference constraint when scheduling packets for transmission. *Prieto, Jr. et al.* discloses (col. 3: 55 – col. 4: 53) a hierarchical scheduling scheme that includes a beam selection stage 30, a wholesaler selection stage 32, one or more retail user selection stages 34 and a coding frame selection stage 36. The beam selection stage 30 applies a Packet Fair Queuing (PFQ)-based algorithm to select which beam (i.e., channel) needing cell throughput is selected for processing. In FIG. 3, several queues 42 are to be examined to determine which is selected for downlink. In the example shown, each queue corresponds to a different beam, and thus a different geographic area to be illuminated. Each queue 42 includes a buffer 44 and a service discipline 46. Some of the queues 42 may be idle, while other queues 42 are backlogged. A selector 48 uses a PFQ-based scheduling algorithm to choose which beam is to be connected to the downlink. The selected beam is assigned a time of access to the downlink (in integer multiples of the downlink frame time) based on the demand and assigned equivalent bandwidth, and then passed to the next stage. By dynamically scheduling the beam hop based on actual user demand, subscription rates, and QoS constraints, the beam selection stage 30 makes efficient use of bandwidth not possible with the conventional fixed tables approach.

Within *Prieto, Jr. et al.*, there is no mention of "**transmission constraint** in the retrieving step **specifies that the packets are to be transmitted to the transmission regions that are non-interfering**." That is, *Prieto, Jr. et al.* does not need to account for overlapping beams that would create interference regions.

In view of the foregoing, the obviousness rejection is unsustainable.

Therefore, the present application, as amended, overcomes the objections and rejections of record and is in condition for allowance. Favorable consideration of this application is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (301) 601-7252 so that such issues may be resolved as expeditiously as possible. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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